

**From:** [Trujillo, Rita, NMENV](#)  
**To:** [Kuehn, Elizabeth, NMENV](#)  
**Subject:** FW: 146646.14.1000 070711 San Juan Generating Station BART Analysis  
**Date:** Wednesday, July 11, 2007 1:47:39 PM  
**Attachments:** @

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-----Original Message-----

From: Norem, Nancy [<mailto:Nancy.Norem@pnmresources.com>]  
Sent: Wednesday, July 11, 2007 12:14 PM  
To: Don\_Shepherd@nps.gov  
Cc: Uhl, Mary, NMENV; Trujillo, Rita, NMENV; Kim, Gi-Dong, NMENV; Mustafa, Sufi A., NMENV  
Subject: FW: 146646.14.1000 070711 San Juan Generating Station BART Analysis

Don,

I am forwarding you the information that Black & Veatch has prepared in response to your inquiries concerning the development of costs for the different NOx control technologies.

Nancy Norem

-----Original Message-----

From: Fischer, Diane M. [<mailto:FischerDM@bv.com>]  
Sent: Wednesday, July 11, 2007 10:24 AM  
To: Norem, Nancy; Huggins, Roosevelt; Chang, Daniel; Lucas, Kyle J.  
Cc: Pinegar, Michelle P.  
Subject: 146646.14.1000 070711 San Juan Generating Station BART Analysis

Nancy -

This email is being sent in response to the National Park Service email shown below.

We have tried to respond to the cost questions in the email below.

However, B&V was hoping to receive a bit of clarification on one item in the email. The email references AP-42. We were not sure of the intent of the AP-42 reference. It appears to be discussed in relationship to the development of pollution control costs. However, AP-42 provides guidance for emission rates and does not provide guidance on cost estimating. In addition to the cost questions, does the National Park Service also have a question regarding the emissions rates discussed in the BART analysis?

Regarding the cost development, we have attached two files. They show the cost spreadsheets from Appendix C of the BART for SNCR/SCR Hybrid and for SCR. They have been modified to provide a more detailed explanation about how each line item of the cost estimate was developed.

When B&V develops cost estimates for BART analyses, we use our database of costs for actual projects and make adjustments to those costs so that they apply to the particular unit (size, flow rate, removal requirements, scope, etc.). B&V has designed (or is in the process of designing) over 20 SCR projects in the US. As a result, B&V has actual pricing that we have found to be more accurate than the values in the OAQPS manual. The resulting estimates are in the +/- 30 percent range.

It should also be noted that the US is currently experience significant increases in cost of coal fired construction. This is a result of the large number of air quality control retrofit projects and new coal generation projects in progress right now. These projects have severely tightened labor markets and increased the cost of items like fabricated steel, pumps, ductwork, dampers, fans, etc.

As you may recall, PNM provided us with the costs presented for the fabric filter and low Nox burner. The costs in the BART report are the actual costs of the work currently being done in response to the consent decree.

We hope that the this response sheds some additional light on the cost estimates in the BART analysis. Please let us know of any additional questions.

Regards,  
Diane Fischer  
Black & Veatch

-----Original Message-----

From: Norem, Nancy [<mailto:Nancy.Norem@pnmresources.com>]  
Sent: Thursday, July 05, 2007 4:59 PM  
To: Huggins, Roosevelt; Fischer, Diane M.; Chang, Daniel; Lucas, Kyle J.  
Subject: FW: San Juan Generating Station BART Analysis

-----Original Message-----

From: Don\_Shepherd@nps.gov [[mailto:Don\\_Shepherd@nps.gov](mailto:Don_Shepherd@nps.gov)]  
Sent: Thursday, July 05, 2007 3:58 PM  
To: Norem, Nancy  
Cc: amebane@fs.fed.us; Bruce\_Polkowsky@nps.gov; Don\_Shepherd@nps.gov; Kim, Gi-Dong, NMENV; Uhl, Mary, NMENV; Trujillo, Rita, NMENV; Mustafa, Sufi A., NMENV; Tim\_Allen@fws.gov  
Subject: RE: San Juan Generating Station BART Analysis

thanks!

"Norem, Nancy"

<Nancy.Norem@pnmres To:  
<Don\_Shepherd@nps.gov>  
ources.com> cc: "Kim,  
Gi-Dong, NMENV" <gi-dong.kim@state.nm.us>, "Uhl, Mary, NMENV"  
<mary.uhl@state.nm.us>, "Trujillo, Rita, NMENV"  
<rita.trujillo@state.nm.us>, "Mustafa,  
07/05/2007 03:51 PM Sufi A., NMENV"  
<sufi.mustafa@state.nm.us>, <Bruce\_Polkowsky@nps.gov>,  
CST <Tim\_Allen@fws.gov>,  
<amebane@fs.fed.us>  
Subject: RE: San Juan  
Generating Station BART Analysis

Don,

I have forwarded your email to B&V, and they are working on getting information to you.

Nancy Norem

-----Original Message-----

From: Don\_Shepherd@nps.gov [[mailto:Don\\_Shepherd@nps.gov](mailto:Don_Shepherd@nps.gov)]  
Sent: Thursday, July 05, 2007 3:11 PM

To: Norem, Nancy  
Cc: Kim, Gi-Dong, NMENV; Uhl, Mary, NMENV; Trujillo, Rita, NMENV; Mustafa, Sufi A., NMENV;  
Bruce\_Polkowsky@nps.gov; Tim\_Allen@fws.gov; amebane@fs.fed.us  
Subject: Fw: San Juan Generating Station BART Analysis

Nancy,

Although the BART guidelines recommend use of AP-42 where possible:

"The basis for equipment cost estimates also should be documented, either with data supplied by an equipment vendor (i.e., budget estimates or bids) or by a referenced source (such as the OAQPS Control Cost Manual...). In order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, where possible. The Control Cost Manual addresses most control technologies in sufficient detail for a BART analysis. The cost analysis should also take into account any site-specific design or other conditions identified above that affect the cost of a particular BART technology option."

many of the costs presented in the SCR section of Appendix C refer only to "B&V cost estimates" or "Engineering estimates." Please provide the bases/justifications for these estimates.

thanks,

Don Shepherd  
National Park Service  
Air Resources Division  
12795 W. Alameda Pkwy.  
Lakewood, CO 80228  
Phone: 303-969-2075  
Fax: 303-969-2822  
E-Mail: don\_shepherd@nps.gov

----- Forwarded by Don Shepherd/DENVER/NPS on 07/05/2007 02:21 PM -----

Don Shepherd

To: "Norem, Nancy"  
<Nancy.Norem@pnresources.com>  
07/05/2007 10:19 cc:  
Don\_Shepherd@nps.gov, "Kim, Gi-Dong, NMENV" <gi-dong.kim@state.nm.us>, "Uhl,  
AM MDT Mary, NMENV"  
<mary.uhl@state.nm.us>, "Trujillo, Rita, NMENV"

<rita.trujillo@state.nm.us>, "Mustafa, Sufi A., NMENV"  
<sufi.mustafa@state.nm.us>

Subject: Re: San Juan Generating Station BART Analysis(Document link:  
Don Shepherd)

Nancy,

Thanks for your response to my initial questions. Considering that you cannot provide the requested information in the requested format, we will not be able to provide our comments by the July 9 date requested by NM.

And, it looks like it will probably be necessary for me to request additional information as i try to understand how Appendix C was generated.

Don Shepherd  
National Park Service  
Air Resources Division  
12795 W. Alameda Pkwy.  
Lakewood, CO 80228  
Phone: 303-969-2075  
Fax: 303-969-2822  
E-Mail: don\_shepherd@nps.gov

"Norem, Nancy"

<Nancy.Norem@pnmres To:  
<Don\_Shepherd@nps.gov>

ources.com> cc: "Uhl, Mary,  
NMENV" <mary.uhl@state.nm.us>, "Trujillo, Rita, NMENV"

<rita.trujillo@state.nm.us>, "Mustafa, Sufi A., NMENV"  
<sufi.mustafa@state.nm.us>,

07/02/2007 04:09 PM "Kim, Gi-Dong, NMENV"  
<gi-dong.kim@state.nm.us>

CST Subject: San Juan  
Generating Station BART Analysis

Don,

The NMED forwarded the following email from you and asked me to respond:

As a follow-up to our receipt of the PSNM San Juan BART Analysis and our phone conversation today, here is an initial list of the information I need to continue my review:

an explanation of how the 0.07 lb/mmBtu NOx target rate was chosen for SCR, and why it should be higher than the rate proposed by Desert Rock tables 8-8 thru 8-21 in an Excel-compatible format  
Appendix C SCR cost tables in an Excel-compatible format

Regarding the question on the NOx Emissions Values:

The SCR controlled NOx value of 0.07 lb/MBtu was based on an information search of the BACT/LAER Clearinghouse. A very recent new permit (5/14/2007) issued by the State of Georgia to Longleaf Energy Associates (LS Power) shows a NOx limit of 0.07 lb/Mbtu for a 30-day rolling average. A conditional permit for 12-month rolling average of 0.05 lb/MBtu is possible, but only after 6-months from the initial start-up of both units in the station to ensure that the plant can achieve those

emissions. The Desert Rock plant has a permitted emission rate of 0.06 lb/Mbtu.

There are inherent differences between a new unit and a retrofit unit.

In the case of a new unit, the SCR can be designed for optimum performance with long residence times. The boiler outlet duct can also be designed for an optimum SCR arrangement. On an existing unit, the ability to install an "ideal" arrangement is limited by the existing plant conditions and restrictions. This is especially true of SCR retrofits. SCR's are located between the economizer and the air heater (or in the case of PNM, the between the ESP and the air heater). This is a very congested area of the plant. Plant equipment (such as fans, boiler support steel, ESP support steel, underground utilities, and air heater maintenance steel) restrict the possible ductwork arrangements. Since SCR performance is highly dependant on having even flow distribution into the ammonia injection grid and the catalyst, the 0.07 lb/Mbtu emission rate reflects the limitation associated with retrofit SCR's and specifically the limitations at SJGS.

PNM does not have Tables 8-8 through 8-21 or the Appendix C SCR cost tables in an EXCEL-compatible format. I contacted Black& Veatch about this issue and was informed as a company policy they do not give EXCEL files to the public for legal reasons.

Nancy Norem

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This inbound email has been scanned by the MessageLabs Email Security System.

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PNM SCR Cost Analysis - FINAL Rev 2 w comments.pdf (21.4KB)

PNM SNCR-Hybrid Cost Analysis - FINAL Rev 2 w comments.pdf (40.6KB)

(62.0KB)

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